



Earnings and characteristics of employees by gender and industrial arrangement

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December 2015

A report for the Pay Equity Unit of the Fair Work Commission

The contents of this paper are the responsibility of the authors and the research has been conducted without the involvement of members of the Fair Work Commission (Commission).

This report uses confidentialised data from the Commission's Australian Workplace Relations Study 2014. The data collection for the AWRS was conducted by ORC International. The findings and views based on these data should not be attributed to the Commission.

ISBN 978-0-9942664-6-0

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This research been scoped and agreed by the Pay Equity Unit 2014–15 Work Program Consultative Committee (Consultative Committee) that includes representatives from:

- Australian Chamber of Commerce and Industry (ACCI);
- Australian Industry Group (Ai Group);
- Australian Council of Trade Unions (ACTU);
- Department of Employment;
- Fair Work Ombudsman (FWO);
- Office for Women, Department of Prime Minister and Cabinet; and
- Workplace Gender Equality Agency (WGEA).

This report represents the work of David Rozenbes and Samantha Farmakis-Gamboni. The authors are grateful for comments provided by Alison Preston as well as Linton Duffin and Christian Taylor for their review.

A draft of this paper was circulated for comment to the Consultative Committee prior to finalisation. The authors would also like to thank the Consultative Committee for its comments.

The contents of this report, however, remain the responsibility of the authors.

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List of abbreviations

ABN	Australian Business Number
ABS	Australian Bureau of Statistics
ANZSIC	Australian and New Zealand Standard Industrial Classification
AWRS	Australian Workplace Relations Study
Commission	Fair Work Commission
CURF	Confidentialised unit record file
EEH	Survey of Employee Earnings and Hours
Fair Work Act	<i>Fair Work Act 2009</i> (Cth)
HILDA	Household, Income and Labour Dynamics in Australia
MEMC	Mining/Electricity, gas, water and waste services/Manufacturing/Construction
OLS	Ordinary least squares
PEH	Public administration and safety/Education and training/Health care and social assistance

Executive Summary

This research provides analysis on the characteristics of female and male employees based on their industrial arrangement coverage and estimates their difference in earnings. It also considers the characteristics of enterprises that predominantly employ female or male employees based on the main industrial arrangement used by the enterprise. The research uses data from the Australian Workplace Relations Study (AWRS), a linked employer-employee dataset undertaken by the Fair Work Commission to investigate a range of workplace matters. The research contributes to the existing literature on pay equity by enabling an analysis of the characteristics of enterprises that predominantly employ either female or male employees by industrial arrangement and by estimating the gender pay gap using both employee and enterprise level data. Undertaken in the first half of 2014, the AWRS presents the first Australia-wide linked employer-employee dataset in almost 20 years. The ability to combine information on enterprises with information on employees within those enterprises is unique to linked datasets.

Data on enterprises is based on information reported by the enterprise. Given that enterprises may use more than one industrial arrangement to set pay for their employees, AWRS allows the construction of variables that estimate the proportion of coverage for each industrial arrangement used by an enterprise. A multinomial probit model is used to analyse factors that influence the types of industrial arrangements used at the enterprise level, for all enterprises and for predominantly female and male enterprises. The key findings show that workforce size is an important characteristic for influencing the industrial arrangement used by the enterprise. Large enterprises (200 or more employees) were found to have a higher probability of using a collective agreement and a lower probability of using an individual arrangement relative to an award, across each enterprise category. Few other characteristics were found to influence the probability of an enterprise using a collective agreement relative to an award. Conversely, when estimating the probability of an enterprise using an individual arrangement relative to an award, each characteristic was statistically significant across all enterprises and predominantly female enterprises. However, there were some differences in the magnitude of the influence of characteristics. These results may suggest that the reasons for enterprises adopting an individual arrangement relative to an award can be partly explained by the characteristics in the analysis, while the reasons that enterprises use collective agreements relative to awards are either mostly due to workforce size or unobserved characteristics. The results also show that similar characteristics are likely to influence the probability of an enterprise using an individual arrangement relative to an award for both predominantly male and predominantly female enterprises. The variation between the probability of predominantly male and predominantly female enterprises using a collective agreement relative to an award is somewhat greater across the characteristics. This may suggest that enterprise characteristics, such as business performance and operations, are more likely to influence the use of a particular industrial arrangement rather than the gender composition of the enterprise.

The results of the binomial probits show that there were few differences in the characteristics that influence the probability of being award reliant between female and male employees. The differences were mainly found for highest educational attainment, which appears to influence the probability of males being award reliant more so than females, and type of income earner, which appears to influence the probability of females being award reliant more so than males. Females are less likely to be award reliant if they expect to use their highest qualification in a future role with

the same employer while males are more likely to be award reliant if they expect to use their highest qualification in a future role in a different industry. This may mean that, for award-reliant males, they expect to be in their current job only for the short term.

There were also some differences between female and male employees in the magnitude of the influence of characteristics such as casual employment, occupation, industry and whether the enterprise exports. This may suggest that there is greater diversity across male employees compared with females.

A review of the literature on differences in earnings by gender and by industrial arrangements suggests that the adjustment of the national minimum wage and award rates of pay are important in determining the overall size of the gap. The studies also found that while personal, education and work characteristics are likely to influence earnings and once controlled for reduce the gender pay gap, the gap remains wider at the higher end of the wage distribution where award reliance does not exist.

The analysis has the advantage of using AWRS to also include the characteristics of enterprises which have not been previously explored. Ordinary least squares regressions on hourly earnings for standard hours worked is estimated separately for award-reliant employees and employees on other industrial arrangements. The raw gender pay gap for award-reliant employees is estimated showing that the earnings of award-reliant females is 0.8 per cent lower than males, however, this difference was not statistically significant. Including controls for employee characteristics increases the difference in earnings, however, this remains not statistically significant. Adding in enterprise characteristics also increases the difference, however, it remains not statistically significant.

For employees on other industrial arrangements, the difference in earnings is statistically significant for each model. The difference in earnings is estimated to be 14.7 per cent without controlling for characteristics, decreasing to 9.1 per cent after including controls for employee and enterprise characteristics.

The findings of these models show that the earnings of award-reliant females and males are relatively similar. For employees on other industrial arrangements, the difference in earnings is statistically significant across all models and reduces as characteristics are added. However, the difference is not eliminated after all the characteristics are controlled for. These results concur with findings reported in previous studies which suggest that the earnings of males and females on awards are relatively equal. Further analysis of earnings could be performed on incorporating other earnings variables such as overtime, penalty rates and bonuses to see how these affect the results. However, difficulties can arise when deriving hourly earnings when these components are included.

1 Introduction

This research provides analysis on the characteristics of female and male employees based on their industrial arrangement coverage and provides an estimate of their difference in earnings. It also considers the characteristics of enterprises who predominantly employ female or male employees based on the industrial arrangement used by the enterprise. In doing so, this research provides a better understanding of the characteristics associated with wage-setting practices from both an employee and employer perspective. This has been achieved using the Australian Workplace Relations Study (AWRS), a linked employer-employee dataset undertaken by the Fair Work Commission (Commission) to investigate a range of workplace matters.

The research focuses on the variation in outcomes between industrial arrangements (award, collective agreement or individual arrangement) by gender, while addressing the following research questions:

1. What are the characteristics of firms that employ female and male employees?
2. What are the characteristics of female and male employees?
3. How do earnings differ by gender?

The research contributes to the existing literature on pay equity by first enabling an analysis of the characteristics of enterprises that predominantly employ either female or male employees by industrial arrangement and also by estimating the gender pay gap using both employee and enterprise level data. Further, given that data from the Australian Bureau of Statistics (ABS)¹ show that more female employees are award reliant than males, this paper also seeks to determine whether the characteristics of award-reliant males and females are different using the information collected in AWRS.

The paper is structured in two parts. The first part of the paper addresses the first two research questions by providing an analysis of what characteristics influence the industrial arrangements of enterprises and employees by gender using AWRS. The second part of the paper addresses the third research question and presents a review of the literature on earnings by gender and industrial arrangement followed by an empirical analysis of the gender pay gap. The analysis uses both employee and enterprise level data described in the first part of the paper.

¹ ABS, *Employee Earnings and Hours, Australia, May 2014*, Catalogue No. 6306.0.

2 Characteristics of enterprises and employees

This chapter describes the AWRS data and the types of enterprises and employees that are analysed. The analysis involves empirical techniques to determine the characteristics that influence the industrial arrangement of enterprises and employees. The chapter addresses the research questions:

1. What are the characteristics of firms that employ female and male employees?
2. What are the characteristics of female and male employees?

2.1 Data

Undertaken in the first half of 2014, the AWRS presents the first Australia-wide linked employer-employee dataset in almost 20 years. The study surveyed enterprises² within the national workplace relations system³ and a sample of employees⁴ from within those same enterprises. Respondents were asked questions on a series of enterprise, workplace relations and employment matters, together with personal information from individual employees. While some of the information collected in the study is often collected in other surveys, the ability to combine information on enterprises with information on employees within those enterprises is unique to linked datasets and allow for further research to be explored on the characteristics of enterprises and their employees. In addition, the AWRS collected relevant information on aspects of the enterprise that are seldom collected in other surveys, of which some are analysed in this paper.

The AWRS was designed to be representative of employers and employees in the national jurisdiction of workplace relations (that is, covered by the *Fair Work Act 2009* (Cth) (Fair Work Act)). The study excluded micro enterprises (those with fewer than five employees); enterprises in Agriculture, forestry and fishing; and enterprises in the Defence industry.⁵

A total of 3057 enterprises completed the minimum number of questionnaires to be considered part of the survey, with 1509 enterprises completing all components. A sample of 7883 employees recruited from within those enterprises completed the employee questionnaire.

A detailed description of the AWRS research design, data collection method and sample selection is available in the AWRS *First findings report*.⁶

² Defined as the head office and all worksites, on most occasions defined as the legal entity with only one Australian Business Number (ABN). In some cases, large enterprises with diverse operations and/or multiple business units within the legal entity were treated differently and a discrete company or business unit was selected for the survey rather than the legal business entity. This approach is similar to that undertaken by the ABS. A similar approach is taken by the ABS to survey very large and diverse enterprises that have business entities, sub entities, or branches within the enterprise group that can report production and employment data for similar economic activities. In many cases the enterprise will operate from a single workplace/site and so the unit of analysis can be either the enterprise or workplace. However, for enterprises that operate from multiple workplaces, it is important to note the distinction.

³ The national workplace relations system includes most Australian employees except for many state government employees, law enforcement or police officers, and non-constitutional corporations in Western Australia.

⁴ All employees from enterprises with 21 or fewer employees were invited to participate in the AWRS. For enterprises with more than 21 employees, a random selection of employees was invited to participate. This was also dependent on the number of persons that responded to the employer surveys. The employee selection process adopted for the AWRS meant that fewer employees from larger employers were invited to participate in the AWRS relative to the number of employees employed by large employers in the population.

⁵ Refers to ANZSIC subdivision 76.

⁶ Fair Work Commission (2015), *First findings report*, January, <https://www.fwc.gov.au/first-findings-report>.

2.1.1 Enterprises

Data on enterprises is based on information reported by the enterprise. The innovative nature of AWRS enables a unique analysis of enterprises by industrial arrangement and gender. Given that enterprises may use more than one industrial arrangement to set pay for their employees, and employ both females and males, it is difficult to categorise enterprises by an industrial arrangement or according to gender. AWRS allows the construction of variables that estimate the proportion of coverage for each industrial arrangement used by an enterprise. Enterprises were therefore categorised by their *main* industrial arrangement used to set pay for their employees (award, collective agreement or individual arrangement). This was determined by the highest proportion of employees covered by that industrial arrangement, as reported by the enterprise.⁷

In most cases, at least half of all employees within an enterprise had their pay determined by the enterprise's main industrial arrangement. In some cases, a main industrial arrangement could not be determined, either because equal numbers of employees were reliant on different arrangements or due to missing data. These enterprises were excluded from the sample.

The AWRS also enables the identification of the proportion of females and males employed at the enterprise. Enterprises are classified as predominantly female when more than half of their workforce is female. The remaining enterprises were considered predominantly male, including enterprises where the workforce comprised equal numbers of females and males.

The number of observations and the weighted proportions for each enterprise category is presented in Table 1. Across these enterprises, around 40 per cent were predominantly female (pred female), and the majority of enterprises where awards were the main industrial arrangement were predominantly female.

Table 2.1: Sample size for each enterprise category

	Award		Collective agreement		Individual arrangement		Total	
	Pred male	Pred female	Pred male	Pred female	Pred male	Pred female	Pred male	Pred female
No. of enterprises	123	191	182	153	657	355	962	699
Weighted proportions (per cent)	37.8	62.2	62.8	37.2	65.0	35.0	59.6	40.4

Note: The sample includes only enterprises that provided information for all characteristics used in the report.

Source: AWRS 2014.

A number of enterprise characteristics are considered that are commonly included in studies that analyse business performance (see Tseng and Wooden 2001). Although the AWRS provides rich information on enterprise characteristics, the selected characteristics have been included by their relevance to the research questions.⁸ The analysis seeks to explore whether these enterprise

⁷ This refers to all employees in the enterprise, not only of those that responded to the survey.

⁸ Characteristics were obtained from the Employer Characteristics, Employee Relations, Structure and operations and Workforce profile surveys.

characteristics vary according to the main industrial arrangement used by the enterprise and the predominant gender among its workforce.

For this paper, similar industries are grouped (from the 18 Australian and New Zealand Standard Industrial Classification (ANZSIC)) to simplify the analysis. These groups are:

- Professional services — Information media and telecommunications; Professional, scientific and technical services; Rental, hiring and real estate services; Administrative and support services, Financial and insurance services;
- Good distribution — Wholesale trade; Retail trade; and Transport, postal and warehousing;
- Household services — Accommodation and food services; Arts and recreation services; and Other services;
- MEMC — Mining; Electricity, gas, water and waste services; Manufacturing; and Construction; and
- PEH — Public administration and safety; Education and training; Health care and social assistance.

Enterprises are also described by their:

- Workforce size (small (5–19 employees); medium (20–199 employees); and large (200 and above));
- Organisation type (public/not-for-profit organisations and private businesses operating for profit); and
- Location (whether largest share of employees is in metropolitan (major city) areas or regional/rural areas).

In order to capture workplace practices, enterprises are also categorised by:

- whether they use shift work arrangements; and
- the proportion of employees that are casuals or classified as managers/supervisors at the enterprise.⁹

As variables commonly used for market competition tend to be subjective, competition is captured by whether enterprises operate in a domestic only market or whether they are involved in at least some exports (see Meng and Meurs 2004; Tseng and Wooden 2001).

Descriptive statistics of these characteristics are presented in Appendix A.

2.1.2 Employees

The sample of employees is constructed to analyse the characteristics of females and males by their industrial arrangement. To determine the industrial arrangement used to set employees' pay, the AWRS asked employees how their wage/salary was determined. Employees could respond "negotiated amount with my employer"; "by an enterprise agreement"; "by an award"; "my employer offered me an amount that was more than the award/standard rate, and I accepted"; "other"; and

⁹ AWRS collected information from enterprises on the number of employees in the following occupational categories: Managers; Supervisors/team leaders; Professionals; Technicians and tradespersons; Personal services; Clerical and administrative; Sales; Machinery operators and drivers; Labourers; and Other.

“don’t know”. Employees were classified into award only and ‘other’ arrangements to simplify the analysis. Employees whose industrial arrangements could not be determined were removed from the sample.

The linked nature of the AWRS allows for a comparison between enterprise and employee reported information on particular characteristics, including industrial arrangements. Given the difficulty with employees identifying their industrial arrangement,¹⁰ employees whose reported industrial arrangement was not also reported by their enterprise were removed from the sample, as were a small number of employees that did not report a gender. In order to obtain a comparison of adult earnings, employees younger than 21 years and apprentices and trainees were also excluded.¹¹

A description of the sample of female and male employees by industrial arrangement is presented in Table 3. In total, 4656 employees were included in the analysis, with females comprising over half of the sample. The weighted proportions show that almost three quarters of award-reliant employees in the sample are female, while just over half of employees on other industrial arrangements are female. Further to the data presented in Table 3, weighted proportions show that 26.9 per cent of females are award reliant across the total sample compared with 12.5 per cent of males.

Table 2.2: Sample size for each employee category

	Award		Other		Total	
	Male	Female	Male	Female	Male	Female
No. of employees	237	676	1788	1955	2025	2631
Weighted proportions (per cent)	25.1	74.9	48.5	51.5	43.8	56.2

Note: The sample includes only employees that provided information for all characteristics used in this report.

Source: AWRS 2014.

The characteristics of employees assessed in this paper are grouped by whether they relate to employees’ current work, their work history or personal characteristics.

Characteristics on ‘current work’ are:

- employment type (permanent or casual employment);
- hours worked (full-time or part-time hours);
- occupation; and
- whether the employee is a union member.

Characteristics on ‘work history’ capture:

- employees’ tenure with their current employer;

¹⁰ Wilkins and Wooden (2011) note the uncertainty many employees have in answering questions related to their method of setting pay and the inaccuracies reported in responses.

¹¹ Austen (2003) excluded teenagers as the jobs in which they are employed are often ‘transitory’ and not reflective of their long-term capacity.

- total time spent in employment; and
- indicators of interruptions to employment, measured by whether they had taken a period of unpaid leave of three months or more, or had been unemployed in the past five years.

Personal characteristics are:

- education variables such as:
 - highest educational attainment;
 - whether they are currently studying; and
 - how employees use their highest qualification;
- age;
- type of income earner within the household;
- whether they speak a language other than English at home; and
- whether they have a disability.

Descriptive statistics of these characteristics are presented in Appendix B.

2.2 Empirical analysis

Probit models are estimated to determine the factors that influence the types of industrial arrangements made at the enterprise and employee level while controlling for other explanatory variables. A probit model estimates the impact of a change in the value of the explanatory variable on the probability of the dependent variable being observed.

A probit model is of the form:

$$y_i^* = \beta x_i + \varepsilon_i \quad (1)$$

Where x_i is a vector of parameters and ε_i is an error term independent of x_i , and is normally distributed with a mean of 0 and variance of 1. Instead of observing y_i^* only a binary variable indicating the sign of y_i^* is observed.

$$y_i = \begin{cases} 1 & \text{if } y_i^* > 0 \\ 0 & \text{if } y_i^* \leq 0 \end{cases} \quad (2)$$

The probit model for binary outcomes extends to the case where the unordered response has more than two outcomes (multinomial probit).

The marginal effects determine the extent to which changes in the explanatory variable affect the probabilities of the outcome of the dependent variable. In discussing the findings, the focus is on the statistically significant results for the marginal effects.

2.2.1 Characteristics of enterprises

A multinomial probit model is used to analyse factors that influence the types of industrial arrangements used at the enterprise level, comparing the results across all enterprises and for predominantly female and male enterprises.

A multinomial probit model is a type of regression where the dependent variable takes more than two values—in this case, award, collective agreement or individual arrangement. The base

category for this analysis is award and the variables discussed and presented in the descriptive statistics at Table A1 are the explanatory variables used in the models.

The results of the multinomial probits are presented in Table 3. The key findings show that workforce size is an important characteristic for influencing the industrial arrangement used by the enterprise. Large enterprises were found to have a higher probability of using a collective agreement and a lower probability of using an individual arrangement relative to an award, across each enterprise category.

Few other characteristics were found to influence the probability of an enterprise using a collective agreement relative to an award, with the use of shift work arrangements and an increase in the proportion of the workforce that is casual having some effect on predominantly female and predominantly male enterprises, respectively. The type of organisation was also found to influence both predominantly female and all enterprises, with the probability of adopting a collective agreement relative to an award lower among private organisations.

Conversely, when estimating the probability of an enterprise using an individual arrangement relative to an award, each characteristic was statistically significant across all enterprises and predominantly female enterprises. However, there were some differences in the magnitude of the influence of characteristics, such as industry and whether the enterprise exports. Characteristics such as the use of shift work arrangements and the employment of casual and managerial workers were found to influence the use of individual arrangements similarly for predominantly female and male enterprises. The type of organisation was also found to influence all enterprises as well as predominantly female enterprises.

These results may suggest that the reasons for enterprises adopting an individual arrangement relative to an award can be partly explained by the characteristics in the analysis, while the reasons that enterprises use collective agreements relative to awards are either mostly due to workforce size or unobserved characteristics.

With regard to the predominant gender of the enterprise, the results show that similar characteristics are likely to influence the probability of an enterprise using an individual arrangement relative to an award for both predominantly male and predominantly female enterprises. The variation between the probability of predominantly female and predominantly male enterprises using a collective agreement relative to an award is somewhat greater across the characteristics, although the results were not always statistically significant. This may suggest that enterprise characteristics, such as business performance and operations, are more likely to influence the use of a particular industrial arrangement rather than the gender composition of the enterprise.

Table 2.3: Probability of an enterprise using a collective agreement or individual arrangement relative to an award

Explanatory variables	All enterprises	Predominantly female enterprises	Predominantly male enterprises
Probability of an enterprise adopting a collective agreement relative to an award			
<i>Industry (base=Professional services)</i>			
Goods distribution	-2.8	1.5	-5.5
Household services	-3.8	-1.1	-5.9
MEMC	11.1***	6.9	8.3*
PEH	2.5	2.8	15.6
<i>Workforce size (base=Small)</i>			
Medium	13.7***	15.4***	12.7***
Large	36.7***	35.0***	35.9***
<i>Type of organisation (base=Public/NFP)</i>			
Private	-10.4***	-12.2***	-0.6
<i>Location (base = regional)</i>			
Metropolitan	-1.0	-1.2	-1.3
<i>Nature of market (base=Domestic only)</i>			
Export	-0.2	-7.5**	1.1
Uses shift work arrangements	2.6	5.6*	-0.5
Proportion casual	4.3	-0.9	8.8**
Proportion managers/supervisors	-5.4	1.0	-10.6
Probability of an enterprise adopting an individual arrangement relative to an award			
<i>Industry (base=Professional services)</i>			
Goods distribution	-8.1**	-25.5***	-0.8
Household services	-12.3***	-20.3***	-6.8
MEMC	-12.5***	-12.5	-10.7**
PEH	-14.6***	-15.8**	-13.3
<i>Workforce size (base=Small)</i>			
Medium	-13.2***	-15.1***	-12.1***
Large	-35.2***	-31.2***	-37.0***
<i>Type of organisation (base=Public/NFP)</i>			
Private	9.7**	11.9**	-2.6
<i>Location (base=Regional/rural)</i>			
Metropolitan	4.5*	7.8**	3.4
<i>Nature of market (base=Domestic only)</i>			
Export	8.3**	20.6***	3.0
Uses shift work arrangements	-9.0***	-11.3**	-6.9**
Proportion casual	-32.3***	-31.5***	-29.6***
Proportion managers/supervisors	23.9***	20.1*	25.5**

Note: Statistical significance is highlighted at the ***1 per cent, **5 per cent, and *10 per cent level.

Source: AWRS 2014.

2.2.2 Characteristics of employees

This section looks at what factors influence industrial arrangements of employees and whether these factors differ by gender. A binomial probit model is used as the dependent variable only takes two values—award and other—with the base category being other industrial arrangements. Separate models are estimated for females and males. The explanatory variables include those discussed in section 2.2 and presented in Appendix B as well as the enterprise characteristics in the previous section. In discussing the findings, the analysis focuses on the statistically significant results.

The results of the binomial probits are presented in Table 4. They show that there were few differences in the characteristics that influence the probability of being award reliant between females and males. The differences were mainly found for highest educational attainment, which appears to influence the probability of males being award reliant more so than females, and type of income earner, which appears to influence the probability of females being award reliant more so than males. Further, females are less likely to be award reliant if they expect to use their highest qualification in a future role with the same employer while males are more likely to be award reliant if they expect to use their highest qualification in a future role in a different industry. This may mean that, for award-reliant males, they expect to be in their current job only for the short term.

There were also some differences between female and male employees in the magnitude of the influence of characteristics such as casual employment, occupation, industry and whether the enterprise exports. This may suggest that there is greater diversity across male employees compared with females. For instance, it may be that females are more concentrated around work that relies on award rates of pay compared with males.

However, overall, the results suggest that characteristics considered to influence the probability of being award reliant do not differ greatly by gender.

Table 2.4: Probability of an employee being award reliant

Employee characteristics	Total	Female	Male
Work characteristics			
<i>Employment type (base=Permanent)</i>			
Casual	11.2***	7.2***	14.1***
<i>Hours worked (base=Full time)</i>			
Part time	7.4***	5.4***	6.0***
<i>Occupation (base=Managers)</i>			
Professionals	5.3***	4.8***	5.2**
Technicians and trades workers	7.2***	5.5***	19.7***
Community and personal service workers	21.0***	17.7***	22.3***
Clerical and administrative workers	5.3***	2.1	4.5*
Sales workers	21.4***	10.9***	28.2***
Machinery operators and drivers	20.0***	16.8***	19.2
Labourers	14.3***	3.6	34.7***
Union member	-0.5	-0.6	0.1
Work history			
<i>Employer tenure (base=Less than 2 years)</i>			
2 to less than 4 years	0.3	-2.3	2.5
4 to less than 6 years	0.9	-0.3	1.9
More than 6 years	0.5	-1.7	2.7
<i>Years in employment (base=Less than 5 years)</i>			
Five to less than 10 years	-2.2	2.4	-5.8
10 to less than 15 years	-2.2	0.6	-4.0
15 to less than 20 years	-3.2	-3.3	-3.2
20 years or more	-8.2**	-2.0	-11.0**
Period of unpaid leave	-0.9	0.9	-1.8
Period of unemployment	1.8	1.7	1.9
Education			
<i>Currently studying (base=No)</i>			
Yes, full time	5.0	9.4	4.1
Yes, part time	1.6	-0.2	1.6
<i>Highest level of education (base=Postgraduate degree)</i>			
Graduate diploma and graduate certificate	0.3	-1.4	1.2
Bachelor degree	0.9	-0.2	2.4
Advanced diploma and diploma	3.9*	-1.5	7.3**
Certificate Level	9.3***	2.5	14.1***
Secondary School	8.8***	5.1*	11.4***
Some Secondary	11.5	0.4	19.2*
Other	-6.2	-3.2	#
<i>Use of highest qualification^</i>			
A past role	-2.5*	-0.0	-4.3*
Current role	-4.6***	-1.9	-7.9***
A future role with the same employer	0.6	-6.5*	5.7
A future role with another employer	-0.7	4.0	-4.1

Earnings and characteristics of employees by gender and industrial arrangement

Employee characteristics	Total	Female	Male
A future role in a different industry	3.9	-0.0	5.2
Other	-6.5	1.5	-16.6**
Unrelated to any past, present or future roles	-3.5*	1.1	-9.4***
Personal characteristics			
<i>Age group (base=21 to 24 years)</i>			
25 to 34 years	-4.5	-3.6	-4.5
35 to 44 years	-4.7	-1.2	-6.1
45 to 54 years	-2.9	-3.3	-3.0
55 to 64 years	-1.1	-4.1	1.5
65 years and over	1.0	-4.0	16.7*
<i>Income earner (base=Main income earner)</i>			
Sole income earner	4.1***	3.4**	0.4
Secondary income earner	6.2***	5.7***	1.3
Other	1.9	6.9*	-6.0
Speaks other than English at home	-0.5	-0.8	0.8
Disability	5.3**	3.5	7.7*
Enterprise characteristics			
<i>Industry (base=Professional services)</i>			
Goods distribution	10.8***	9.5***	14.1***
Household services	15.9***	9.5***	20.0***
MEMC	0.7	2.6*	2.7
PEH	18.1***	12.7***	20.2***
<i>Workforce size (base=Small)</i>			
Medium	-0.8	-0.6	-0.6
Large	-5.9***	-7.4***	-5.0*
<i>Organisation type (base=Public/not-for-profit)</i>			
Private	-0.3	-3.4	1.2
<i>Location (base=Regional/rural)</i>			
Metro	-3.0***	-1.1	-3.7**
<i>Nature of market (base=Domestic only)</i>			
Export	-7.9***	-3.9**	-10.9***
Shift work arrangements	2.7**	4.0***	2.0

Note: Statistical significance is highlighted at the ***1 per cent, **5 per cent, and *10 per cent level. ^Multiple response questions therefore results are relative to not selecting the characteristic rather than a base characteristic. #Not estimable.

Source: AWRS 2014.

3 Gender and earnings

The final chapter of this report provides both an empirical analysis and a literature review to address the third research question:

- How do earnings differ by gender?

Institutional discrimination in setting wages was evident in the *Harvester* decision of 1907¹² and in a number of cases regarding female wages.¹³ The *Harvester* decision determined the male basic wage on the basis of 'family' needs, while the female basic wage was determined on the basis of 'individual' needs for a single woman. The *Rural Workers' Case* of 1912 was the first case to determine the basic wage for adult female workers. The principles considered in the case led to the segregation of males and females into different occupations which helped perpetuate gender pay inequalities (Preston 2001: 43). The gender pay gap has narrowed over time largely as a result of the development of the principles of equal pay.¹⁴

It was many decades later that the principle of equal pay for equal work was considered and first agreed to in the *Equal Pay Case* of 1969.¹⁵ However, only 18 per cent of females covered by federal awards received pay increases as a result of this decision as the principle only applied in cases where males and females performed similar work or were covered by the same award. Work usually performed by females, such as nursing and administrative support services, were not covered by the decision (Preston 2001: 45).

The *National Wage Case Equal Pay Case* of 1972¹⁶ "remedied key deficiencies of the 1969 case" (Layton et al. 2013: 133) and developed a principle of 'equal pay for work of equal value' which determined the value of work without regard to gender. According to Layton et al. (2013), the equal pay decisions had a significant impact on the gender pay gap.¹⁷ In 1974, a single minimum wage for adults was established, replacing separate minimum rates for males and females. In 1993 the objective of equal remuneration for men and women was enacted through the *Industrial Relations (Reform) Act 1993*.

The Fair Work Act requires the Commission to take into account the principle of equal remuneration for work of equal or comparable value in the setting and adjusting of minimum wages as well as the adjustment of modern awards.¹⁸ The Commission may also make equal remuneration orders that "it considers appropriate to ensure that, for employees to whom the order will apply, there will be equal remuneration for work of equal or comparable value"¹⁹ which "means

¹² *Ex parte HV McKay* (1907) 2 CAR 1.

¹³ Such as the *Rural Workers' Union v. Mildura Branch of Australian Dried Fruits Association* (1912) 6 CAR 61 and the *Australian Theatrical and Amusement Employees Association and JC Williamson Ltd* (1917) 11 CAR 133.

¹⁴ For a comprehensive review of the development of equal remuneration within the Australian context see Preston (2001), Romeyn et al. (2011) and Layton et al. (2013).

¹⁵ *Equal Pay Case* (1969) 127 CAR 1142.

¹⁶ *National Wage Case and Equal Pay Cases* (1972) 147 CAR 172.

¹⁷ This has also been argued by Gregory (1999) and Whitehouse (2001) who also acknowledged that the centralised wage fixing system contributed to the effective implementation of the decisions and increase in female wages.

¹⁸ Fair Work Act, s.134(1)(e).

¹⁹ Fair Work Act, s.302(1).

equal remuneration for men and women workers for work of equal or comparable value".²⁰ As noted in Layton et al. (2013), the Fair Work Act explanatory materials suggest that the principle of equal remuneration for work of equal or comparable value was to be a more expansive concept than previous systems.

A literature review on differences in earnings by gender is provided in the first section of this chapter, with a focus on differences by industrial arrangements. A summary of factors that affect the difference in earnings between females and males is provided in Romeyn et al. (2011) which discussed the influence of labour market characteristics such as industry, occupation, workforce size and organisation type, and personal characteristics such as age, human capital and personality traits on earnings. Pointon et al. (2012) also acknowledged that hours worked, employment status, access to overtime and discretionary payments such as commissions, allowances and bonuses can be factors as well.

3.1 Literature review

Some studies have already considered whether there is an association between gender pay and industrial arrangements. These studies reflect the different workplace relations legislation enacted from the early 1990s when enterprise bargaining was first introduced, however, this review will focus on more recent studies.

Using the Household, Income and Labour Dynamics in Australia (HILDA) survey for 2008 and 2009, Wilkins and Wooden (2011) tested the hypotheses that awards eliminate the gender pay gap for lower paid workers and that females are disadvantaged relative to males in bargaining. Their estimation used an ordinary least squares (OLS) regression with the natural logarithm of hourly earnings as the dependent variable. Results were presented separately for award and other workers by gender. After introducing controls for personal and employment characteristics, they found that the hourly earnings for award-reliant females and males were relatively similar. However, on average males earned more than females for those covered by collective and individual arrangements, even when controlling for personal and employment characteristics. The authors established that awards reduced the gender pay gap and that a more decentralised form of wage-setting produced the opposite effect.

Notwithstanding their finding that decentralised bargaining has increased the gender pay gap, the authors also contended that all employees do better under a more decentralised form of wage setting than if dependent on awards. This is because the employees not dependent on awards receive higher wages than those who receive award rates of pay. However, the authors also point out that males have benefited from the decentralisation of wage setting more so than females, stating that:

While we have not attempted here to identify where in the earnings distribution the advantage to men lies, the evidence presented ... strongly suggests that it lies in the upper part of the earnings distribution where award-reliant workers are not found. Thus even if the declining trend in award reliance could be reversed it would still not impact much on that part of the workforce where the inequity is most substantial (Wilkins and Wooden 2011: 20).

²⁰ Fair Work Act, s.302(2).

Austen et al. (2008) found greater differences in earnings between females and males in the higher percentile earnings brackets across most industries. Using the HILDA survey for 2006 and applying the standard Blinder-Oaxaca decomposition, the study examined the gender pay gap within low-paid industries. The estimated model controlled for characteristics such as age, occupation, job tenure, qualifications, employment status and firm size. The paper found that the adjusted gender pay gap was lower than the raw gender pay gap and, in some cases, the adjusted gender pay gap was negative, suggesting that female earnings were higher than males after controlling for factors other than gender.

Austen et al. (2008) argued that, as females are overrepresented in low-paid jobs, removing increases in minimum wages would have a greater effect on the average female wage and increase the gender pay gap. They concluded that minimum wages have a role in increasing wage equality and encouraging labour force participation of females, stating that:

A key finding from this study is that minimum wage decisions are one of a range of important factors influencing gender differences and patterns of women's labour market participation. However such decisions cannot be isolated from the broad social and economic environment in which they operate. The role that minimum wage decisions play appears to be linked not only to their role as an important source of wage growth for many women but also as a determinant of women's involvement in paid work. This latter effect of minimum wages will have long-lasting effects on gender-based wage equality in the Australian labour market (Austen et al. 2008: 51).

Using the ABS Survey of Education and Training 2005 Expanded CURF, Healy, Kidd and Richardson (2008) estimated the size of the gender pay gap, while controlling for characteristics such as education and labour market experience. Results from estimates drawn from a human capital based wage equation, which was modelled separately for males and females, were used to perform a standard Blinder-Oaxaca decomposition analysis. Their findings showed that the difference in female and male characteristics explained only a small percentage of the overall pay gap, but that the gap increased once industry was controlled for. The authors reported that:

This is once again suggestive of the important role played by male–female differences in industry of employment. The effect implies that the Commission [the then Australian Fair Pay Commission] may play an important role in determining the overall size of the gender wage gap, through its role in setting award wages (Healy, Kidd and Richardson 2008: 261).

This issue was further explored by estimating separate gender-specific regressions for industry and occupation groups. They found substantial variation in the gender wage gap across industries, which ranged from 5 per cent in Accommodation, cafes and restaurant to more than 17 per cent in Property and business services.

Their results showed that industries with smaller gender pay gaps, such as Accommodation, cafes and restaurants, also had the smallest proportion of their gender pay gap explained by gender-specific differences in human capital. A possible explanation for this was that “industries with a strong award structure successfully limit the size of the gender pay gap but also decrease the wage variance and the consequent impact of human capital” (Healy, Kidd and Richardson 2008: 261). However, the authors noted that the skewed wage distribution towards lower wages in award-reliant industries such as Retail trade and Accommodation, cafes and restaurants presented difficulties for the model to test the gender pay gap compared with industries that have a wider wage distribution. These findings were found to also be applicable to occupations, leading the authors to conclude that there were smaller differences in female and male wages in industries or

occupations that had a higher proportion of award-reliant workers. Similar to findings reported in Wilkins and Wooden (2011), the authors concluded that “male and female wages may be more closely aligned in these sectors, but only because both genders are disadvantaged in these sectors relative to most other Australian employees” (Healy, Kidd and Richardson 2008: 263).

Healy, Kidd and Richardson also examined average hourly ordinary-time earnings by gender and method of setting pay and found that female wages under enterprise bargaining were lower than males. However they noted that while the gap between female and male wages was larger under enterprise bargaining, the absolute value of wages was higher, suggesting that bargaining delivered benefits for both genders, with the greatest relative benefit to males. This finding was also consistent with results reported in Wilkins and Wooden.

Whitehouse and Frino (2003) noted that analysing the differences between workers covered by an award and workers covered by other industrial arrangements was imperative when investigating pay equity because of the differences in average wage outcomes and the distribution of males and females between the types of agreements. While examining the proportion of females covered by various industrial arrangements with lower average earnings was important, they explained that investigating differences both between and within each industrial arrangement was also important for analysing earnings by gender, as both contribute to the overall gap. Whitehouse and Frino stated that:

... even if women are not disadvantaged relative to men within particular bargaining streams, they may be disadvantaged overall if they are concentrated in a stream where average earnings are low, particularly if overall wage dispersion is increasing (Whitehouse and Frino 2003: 580).

The research used the then Australian Centre for Industrial Relations Research and Training's Agreements Database and Monitor in addition to the collection of unpublished survey data and presented results on 2131 collective agreements covering 500 000 employees certified between 1992 and 2000. The study compared male- and female-dominated agreements by using an OLS regression to assess the relative effects of several characteristics. The results showed that the female share of agreements had a very small negative effect on the average annual wage increase in those agreements once other characteristics were controlled for, suggesting that industry and lack of union coverage were factors that influenced the outcomes of female-dominated agreements. The gender pay gap was found to be more evident among individual arrangements and collective agreements, and male-dominated agreements were more likely to obtain higher wage increases which contributed to the overall gender pay gap.

Sullivan, Strachan and Burgess (2003) also found a difference between hourly rates of pay for awards and registered collective agreements using the Survey of Employee Earnings and Hours (EEH) (for May 2000). They noted that award rates of pay were relatively important for part-time workers in a number of service sector industries within unskilled and semi-skilled occupations and that they were associated with relatively low trade union density. They commented that “... these features coincide with many of the characteristics of women's employment” (Sullivan, Strachan and Burgess 2003: 169) and stated that:

The EB agenda is clearly contributing to a growing schism between the well-organised, well-represented professional and skilled workers and the non-organised, unskilled/semi-skilled and unrepresented, a group which includes many women workers (Sullivan, Strachan and Burgess 2003: 172).

In considering the bargaining position of female workers, Wooden (1997) commented that females were in a weaker bargaining position relative to males due to the concentration of females in lower status jobs, a higher concentration of females in part-time and casual employment and lower levels of union membership. Examining the period 1992 to 1995 using the ABS Distribution and Composition of Employee Earnings and Hours (a precursor to the EEH), Wooden concluded that low unionisation among females did not necessarily lead to relatively lower wages and that earnings among females in female-dominated occupations increased relative to males. Wooden noted that these results suggest factors other than unionisation and the proportion of female employment should be further explored. However, Wooden also explained that hourly earnings for part-time workers experienced a relative decline during this period, possibly due to their lower ability to bargain. Occupational segregation was not found to negatively impact on the pay gap and that it was mainly due to females' concentration in part-time work. Wooden concluded that "if award wages fail to keep pace with the average rates of increase being delivered by enterprise bargaining (as seems likely), the average gender earnings differential across all workers will widen" (Wooden 1997: 224).

To summarise, a review of the literature suggests that the adjustment of the national minimum wage and award rates of pay are important in determining the overall size of the gap. The studies also found that while personal, education and work characteristics are likely to influence earnings and once controlled for reduce the gender pay gap, the gap remains wider at the higher end of the wage distribution where award reliance does not exist.

Using data drawn from the AWRS, similar characteristics to those reported in this literature will be used to analyse what characteristics, if any, differ by gender and industrial arrangements and whether they have an effect on earnings. The analysis also has the advantage of using AWRS to include the characteristics of enterprises that employ these types of workers which have not been previously explored.

3.2 Data

This section uses the characteristics analysed in section 2.2.2 where data are obtained from both enterprises and employees. The majority of the characteristics are obtained from employees, including earnings and industrial arrangements.

Hourly earnings are used in this analysis to remove the effects of different numbers of weekly hours worked across employees, such as part-time employees. Survey respondents were asked how often they receive their wage/salary in order to determine their pay period. Employees were then asked their total gross (before tax) wage for their most recent pay, including a breakdown of the components of pay (base salary/retainer, overtime payments, penalty payments, taxable allowances and commissions/bonuses). Employees were then asked how many standard and overtime hours they were paid for in their most recent pay period.

The variable for base salary/retainer is used as the measure of earnings. This removes any variation in earnings due to overtime work, allowances or bonuses that are not similar across employees. Hourly earnings were derived by taking the base salary/retainer or standard hours earnings for work performed during standard hours (PKAGE_1) for the most recent pay and dividing this by the number of standard hours that employees were paid for in their most recent pay period (STD_HRS). Employees needed to have provided data for both standard earnings and standard hours worked to be included in the analysis. Hourly earnings of casual employees were

discounted to account for the loading they receive to compensate for not receiving sick or annual leave.²¹

Given that the national minimum wage was \$16.37 at the time of the AWRS, employees whose earnings were below \$16.00 were removed from the sample. Some data cleaning was undertaken, particular where the base salary/retainer or standard hours earnings for work performed during standard hours reported did not appear to match the standard hours worked for the pay period.

Employees are categorised into industrial arrangements by whether the employee receives the exact award rate of pay (award) or any other type of arrangement (other) based on the responses provided by surveyed employees and checked with their corresponding enterprise.

3.3 Empirical analysis

Using the AWRS, this analysis determines whether the differences in earnings within an industrial arrangement vary between males and females while controlling for enterprise and employee characteristics.

The estimation uses the following OLS regression, which is a linear regression of the form:

$$\ln W_i = a + \beta X_i + \delta G_i + \phi Z_i + \varepsilon_i \quad (3)$$

Where W_i is the hourly wage of employee i , X_i is a vector of employee i 's work and personal characteristics, Z_i is a vector of employee i 's enterprise characteristics, G_i is a binary variable indicating whether employee i is female or not and ε_i is an error term.

The error term ε_i , is assumed to have a mean of zero and be uncorrelated with the employee and enterprise characteristics, however, it may include information on omitted variables and measurement error.

Following the approach in Wilkins and Wooden (2011), an OLS estimation is applied rather than a decomposition analysis because of the need to incorporate both gender and industrial arrangement. Incorporating industrial arrangement will not provide additional information to the explained component of the decomposition outcome given that award-reliant employees are more likely to be at the lower end of the wage distribution. Further, analyses of the gender pay gap using the decomposition approach have been numerous and therefore the interest here is on how the difference changes once characteristics are controlled.

The dependent variable is the natural logarithm of hourly earnings. Therefore, coefficients on binary variables can be interpreted as the percentage difference from the reference category. As gender is included as an explanatory variable, the coefficient on this variable is used to estimate the difference in earnings. Separate equations are estimated for award-reliant employees and employees on other industrial arrangements.

The first model does not include explanatory variables except for gender and a constant term to estimate the raw gender pay gap (without controlling for any characteristics). The coefficient of the gender variable gives the estimate for the raw difference in earnings. To investigate whether and how the characteristics affect earnings, separate models are used that first control for employee

²¹ The loading was assumed to be 25 per cent across all casual employees.

characteristics, and then both employee and enterprise characteristics. The final model includes all enterprise characteristics except for the proportion of the workforce that are casuals and managers/supervisors due to the potential association with employee’s own employment type and occupation. Only employees who reported a response for each characteristic are included in the analysis, which reduces the sample to 768 award-reliant employees and 3485 employees on other industrial arrangements.

Table 3.1 presents the results separately for award-reliant and other employees. The first model shows that the earnings of award-reliant females is 0.8 per cent lower than males, however, this difference was not statistically significant. Including controls for employee characteristics increases the difference in earnings, however, this remains not statistically significant. Adding in enterprise characteristics makes some difference, however, again, the coefficient is not statistically significant.

For employees on other industrial arrangements, the coefficient of the female variable is statistically significant for each model. The difference in earnings is estimated to be 14.7 per cent without controlling for characteristics, decreasing to 9.1 per cent after including controls for employee characteristics. Including enterprise characteristics has little effect on the difference in earnings which remains statistically significant.

Table 3.1: Difference in earnings

	Award	Other
	Coefficient	Coefficient
Model 1 (gender)	-0.008	-0.147***
Model 2 (gender, employee)	-0.022	-0.091***
Model 3 (gender, employee, enterprise)	-0.036	-0.091***

Note: Statistical significance is highlighted at the ***1 per cent, **5 per cent, and *10 per cent level.

Source: AWRS 2014.

The findings of these models show that the earnings of award-reliant females and males are relatively similar. For employees on other industrial arrangements, the difference in earnings is statistically significant across all models and reduces as characteristics are added. However, the difference is not eliminated after all the characteristics are controlled for. These results concur with findings reported in Wilkins and Wooden which suggest that the earnings of males and females on awards are relatively equal.

In interpreting the results, it should be remembered that earnings are captured by the base salary/retainer and exclude other wage measures such as overtime, penalty rates, allowances, commissions and bonuses. These measures may be related to the industry of employment and can have positive or negative effects on the differences in earnings. They have been excluded in this analysis in order to consider the base salary, which provides a better measure of hourly earnings.

It should also be noted that the sample of award-reliant employees contained many more females than males. Further, employees in micro enterprises (fewer than five employees) were excluded from the AWRS and including these employees may affect the results.

4 Conclusion

Rather than determining the percentage of employees or enterprises that use particular industrial arrangements, this report sought to provide a better understanding for the reasons employees and enterprises use particular industrial arrangements and whether this differed by gender. While this report analysed the differences between males and females, it also examined the differences in enterprises with predominantly female or male employees. The way AWRS is structured allowed enterprises to be identified by their main industrial arrangement: award, collective agreement or individual arrangement. This information was used to determine what factors influence the industrial arrangement used by an enterprise. Collecting information on their employees allowed for analysis to be undertaken on the characteristics of employees covered by different industrial arrangements.

The research questions have been addressed using the linked nature of the AWRS where information from employees has been matched with the enterprises in which they are employed. It also considered a number of characteristics that are not collected in any other official data source, such as the market in which enterprises operate and, for employees, whether they are the main income earner and how they use their highest qualification.

The analysis on enterprises found that workforce size influences the probability of enterprises adopting a particular industrial arrangement. There were few other characteristics that influenced the probability of an enterprise using a collective agreement relative to an award. However, most other characteristics were found to influence the probability of an enterprise using an individual arrangement relative to an award, particularly for enterprises with a predominantly female workforce. This suggests that the reasons for enterprises adopting an individual arrangement relative to an award can be explained by these characteristics, while the reasons that enterprises use collective agreements relative to awards are either mostly due to workforce size or unobserved characteristics.

The AWRS also enabled a different insight into characteristics of female and male employees and their industrial arrangements. While females are more likely to be award reliant than males, the binomial probit analysis found that the characteristics that influence the probability of being award reliant were relatively similar between males and females. Therefore, the reasons for the difference in industrial arrangement coverage by gender may be due to the few characteristics where differences are found (such as employment history), or due to characteristics not observed in the model.

The OLS regression of hourly earnings found no statistically significant difference in earnings between female and male award-reliant employees. This is not an unexpected result given previous research findings in relation to the effects of centralised and decentralised wage-setting on gender pay differentials (Pointon 2012: ii). However, differences in the hourly earnings among employees on other industrial arrangements were found, with the difference reducing as employee and enterprise characteristics were controlled for. This supports prior evidence that greater differences in earnings between females and males exist at the higher end of the wage distribution rather than at the lower end where awards are often located. Further analysis of earnings could be performed on incorporating other earnings variables such as overtime, penalty rates and bonuses to see how these affect the results. However, difficulties can arise when deriving hourly earnings when these components are included.

References

- Australian Bureau of Statistics (2015), 'A guide to understanding average weekly earnings statistics', *Average Weekly Earnings, Australia, Nov 2014*, Catalogue No. 6302.0.
- Austen S (2003), 'Gender differences in the likelihood of low pay in Australia', *Australian Journal of Labour Economics*, Vol. 6, No. 1, March, pp. 153–176.
- Austen S, Jefferson T, Preston A and Seymour R (2008), *Gender pay differentials in low-paid employment*, report commissioned by the Australian Fair Pay Commission, Research Report No. 3/09.
- Baron JD and Cobb-Clark DA (2010), 'Occupational segregation and the gender wage gap in private- and public-sector employment: a distributional analysis', *Economic Record*, Vol. 86, No. 273, June, pp. 227–246.
- Blinder A (1973), 'Wage discrimination: Reduced form and structural estimates', *Journal of Human Resources*, Vol. 8, pp. 436–455.
- Coelli MB (2014), 'Occupational differences and the Australian gender wage gap', *Australian Economic Review*, Vol. 47, No. 1, pp. 44–62.
- Daly A, Kawaguchi A, Meng X and Mumford K (2006), *The gender wage gap in four countries*, Institute for the Study of Labor (IZA), Discussion Paper No. 1921, January.
- Gregory B (1999), 'Labour market institutions and the gender pay ratio', *Australian Economic Review*, Vol. 32, No. 3, pp. 273–278.
- Healy J, Kidd M and Richardson S (2008), 'Gender pay differentials in the low-paid labour market', *2008 Minimum Wage Research Forum Proceedings, Volume 2*, report commissioned by the Australian Fair Pay Commission, Research Report No. 4b/08, October.
- Kee HJ (2006), 'Glass ceiling or sticky floor? Exploring the Australian gender pay gap', *Economic Record*, Vol. 82, No. 259, pp. 408–427, December.
- Layton M, Smith M and Stewart A (2013), *Equal Remuneration under the Fair Work Act 2009*, The University of Adelaide, a report for the Pay Equity Unit of the Fair Work Commission.
- Li IW and Miller PW (2012), 'Gender discrimination in the Australian graduate labour market', *Australian Journal of Labour Economics*, Vol. 15, No. 3, pp. 167–199.
- Miller PW (2005), 'The role of gender among low-paid and high-paid workers', *Australian Economic Review*, Vol. 38, No. 4, pp. 405–417.
- Meng X and Meurs D (2004), 'The gender earnings gap: effects of institutions and firms—a comparative study of French and Australian private firms', *Oxford Economic Papers*, Vol. 56, No.2, pp. 189–208, April.
- Miller PW (1994), 'Effects on earnings of the removal of direct discrimination in minimum wage rates: a validation of the Blinder decomposition', *Labour Economics*, Vol. 1, pp. 347–363.
- Oaxaca R (1973), 'Male-female wage differentials in urban labour markets', *International Economic Review*, Vol. 14, pp. 693–709.

Pointon M, Wheatley T, Ellis G and MacDermott K (2012), *Award reliance and differences in earnings by gender*, Fair Work Australia, Research Report 3/2012, February.

Preston AC (2001), 'Wages in practice: Wage fixing in Australia', in *The Structure and Determinants of Wage Relativities, Evidence from Australia*, Ashgate Publishing Limited, England.

Reiman C (2001), *The gender wage gap in Australia: accounting for link employer-employee data from the 1995 Australian Workplaces Industrial Relations Survey*, National Centre for Social and Economic Modelling, Discussion Paper No. 54, March.

Romeyn J, Archer S and Leung E (2011), *Review of equal remuneration principles*, Fair Work Australia, Research Report 5/2011, February.

Rozenbes D (2010), *An overview of compositional change in the Australian labour market and award reliance*, Research Report 1/2010, Fair Work Australia, February.

Sullivan A, Strachan G and Burgess J (2003), 'Women workers and enterprise bargaining', in Burgess J and Macdonald D (eds), *Developments in Enterprise Bargaining in Australia*, Tertiary Press, Melbourne.

Tseng Y and Wooden M (2001), *Enterprise bargaining and productivity: evidence from the Business Longitudinal Survey*, Melbourne Institute Working Paper No. 8/01, Melbourne Institute of Applied Economic and Social Research.

Whitehouse G and Frino B (2003), 'Women, Wages and Industrial Agreements', *Australian Journal of Labour Economics*, Vol. 6, No. 4, December, pp. 579–596.

Whitehouse G (2001), Recent trends in pay equity: beyond the aggregate statistics, *Journal of Industrial Relations*, Vol. 43, No. 1, pp. 66–78, March.

Wilkins R and Wooden M (2011), *Measuring minimum award wage reliance in Australia: the HILDA Survey experience*, Melbourne Institute Working Paper Series, Working Paper No. 11/11, May.

Wooden M (1999), Gender pay equity and comparable worth in Australia: a reassessment, *Australian Economic Review*, Vol. 32, No. 2, pp. 157–171, June.

Wooden M (1997), 'Enterprise bargaining and the gender earnings gap', *Australian Bulletin of Labour*, Vol. 23, No. 5, pp. 214–226, September.

Appendix A

Table A1: Descriptive statistics by predominant gender and industrial arrangement

	Award		Collective agreement		Individual arrangement		Total	
	Pred male	Pred female	Pred male	Pred female	Pred male	Pred female	Pred male	Pred female
<i>Industry group</i>								
Professional services	7.7	7.7	18.9	15.0	24.2	38.7	21.0	27.2
Goods distribution	29.1	22.7	13.6	8.6	30.1	14.1	28.3	15.8
Household services	44.3	46.3	8.0	26.1	12.5	18.6	16.4	27.5
MEMC	18.0	2.7	54.3	4.0	32.1	6.0	32.8	4.7
PEH	0.9	20.7	5.1	46.2	1.0	22.6	1.5	24.8
<i>Workforce size</i>								
Small	75.3	77.7	52.7	35.8	81.8	83.9	77.6	77.3
Medium	22.3	20.7	38.6	51.0	17.3	15.2	20.4	20.4
Large	2.4	1.6	8.7	13.2	0.9	0.9	2.0	2.3
<i>Organisation type</i>								
Public/Not-for-profit	9.0	18.7	6.4	59.1	5.4	15.4	5.9	20.7
Private	91.0	81.3	93.6	40.9	94.6	84.6	94.1	79.3
<i>Location</i>								
Regional	43.7	52.1	39.5	43.5	34.9	31.9	36.4	38.9
Metropolitan	56.3	47.9	60.5	56.5	65.1	68.1	63.6	61.1
<i>Nature of market</i>								
Domestic only	89.9	96.9	77.2	96.5	78.2	83.5	79.4	88.7
Exports	10.1	3.1	22.8	3.5	21.8	16.5	20.6	11.3
Shift work arrangements	46.5	44.1	28.0	44.9	15.9	15.7	20.9	26.8
<i>Proportion of workforce...</i>								
Casuals	45.3	52.7	18.0	27.2	12.6	16.8	17.1	28.3
Managers/supervisors	20.6	17.9	21.5	20.7	27.3	24.4	25.8	22.2

Source: AWRS 2014.

Appendix B

Table B1: Current work characteristics, by gender and industrial arrangement

	Award		Other		Total	
	Male	Female	Male	Female	Male	Female
<i>Employment type</i>						
Permanent	67.5	69.3	93.6	92.8	90.6	86.6
Casual	37.5	30.7	6.4	7.2	9.4	13.3
<i>Hours worked</i>						
Full-time	74.0	45.1	94.2	68.9	91.9	62.6
Part-time	26.0	54.9	5.8	31.1	8.1	37.4
<i>Occupation</i>						
Managers	9.8	7.2	29.5	17.8	27.3	15.0
Professionals	17.6	16.8	25.3	28.1	24.4	25.1
Technicians and trades workers	12.2	2.9	16.4	2.2	15.9	2.4
Community and personal service workers	20.9	19.9	2.1	4.6	4.3	8.7
Clerical and administrative workers	6.8	32.8	12.6	42.1	11.9	39.6
Sales workers	11.8	13.8	5.0	4.1	5.7	6.7
Machinery operators and drivers	16.2	0.6	5.8	0.4	7.0	0.4
Labourers	4.7	6.1	3.4	0.8	3.5	2.2
Union member	8.6	7.1	8.0	7.1	8.1	7.1

Source: AWRS 2014.

Table B2: Work history, by gender and industrial arrangement

	Award		Other		Total	
	Male	Female	Male	Female	Male	Female
<i>Employer tenure</i>						
Less than 2 years	37.1	29.5	25.1	30.9	26.5	30.5
2 to less than 4 years	18.7	23.8	21.6	22.0	21.3	22.4
4 to less than 6 years	15.8	13.3	13.3	14.1	13.6	13.9
More than 6 years	28.4	33.5	39.9	33.1	38.6	33.2
<i>Years in employment</i>						
Less than five years	6.6	6.4	3.6	4.0	3.9	4.7
Five to less than 10 years	16.3	13.1	10.0	13.0	10.7	13.0
10 to less than 15 years	16.1	19.5	16.4	19.1	16.4	19.2
15 to less than 20 years	10.3	18.3	15.6	16.2	15.0	16.8
20 years or more	50.6	42.7	54.4	47.6	54.0	46.3
Period of unpaid leave	12.0	18.8	6.5	17.8	7.1	18.1
Period of unemployment	36.2	31.1	21.6	28.1	23.2	28.9

Source: AWRS 2014.

Table B3: Education, by gender and industrial arrangement

	Award		Other		Total	
	Male	Female	Male	Female	Male	Female
<i>Currently studying</i>						
No	85.0	83.2	89.9	85.6	89.4	84.9
Yes, full time	7.3	3.5	0.9	1.6	1.6	2.1
Yes, part time	7.7	13.3	9.2	12.8	9.0	12.9
<i>Highest level of education</i>						
Postgraduate degree	7.2	4.7	11.6	10.9	11.1	9.3
Graduate diploma/graduate certificate	4.4	5.5	7.0	8.6	6.7	7.7
Bachelor degree	14.7	14.7	21.9	23.1	21.0	20.9
Advanced diploma and diploma	8.6	15.3	14.4	16.9	13.7	16.5
Certificate Level	29.2	32.6	25.0	20.3	25.5	23.6
Secondary School	34.8	26.0	19.6	19.3	21.4	21.1
Some Secondary	0.5	1.1	0.4	0.7	0.4	0.8
Other	0.5	0.0	0.2	0.2	0.2	0.1
<i>Use of highest qualification*</i>						
A past role	29.1	30.0	31.0	29.4	30.8	29.1
Current role	28.9	39.3	52.5	50.1	49.8	28.9
A future role with the same employer	3.1	4.5	7.1	4.8	6.7	3.1
A future role with another employer	5.1	5.1	6.5	5.8	6.3	5.1
A future role in a different industry	6.1	8.0	5.4	5.2	5.5	6.1
Other	1.2	0.9	0.9	1.4	1.0	1.2
Unrelated to any roles	11.1	4.4	4.2	3.5	5.0	11.1
Don't know	28.6	23.5	18.6	23.2	19.8	28.6

Note: *Multiple response characteristic

Source: AWRS 2014.

Table B4: Personal characteristics, by gender and industrial arrangement

	Award		Other		Total	
	Male	Female	Male	Female	Male	Female
<i>Age group</i>						
21 to 24 years	11.7	10.2	2.8	6.6	3.8	7.5
25 to 34 years	24.0	25.9	26.0	29.0	25.7	28.2
35 to 44 years	23.6	18.6	27.0	25.7	26.6	23.8
45 to 54 years	20.3	24.7	26.1	25.5	25.4	25.3
55 to 64 years	16.8	18.1	15.7	12.4	15.8	14.0
65 years and over	3.6	2.4	2.4	0.7	2.6	1.2
<i>Income earner</i>						
Sole income earner	32.2	14.5	54.2	18.4	51.7	17.4
Main income earner	39.5	28.8	31.8	29.1	32.7	29.0
Secondary income earner	23.3	54.7	10.5	48.3	12.0	50.0
Other	5.0	2.0	3.5	4.2	3.7	3.6
Speaks language other than English at home	12.4	10.3	13.2	11.7	13.1	11.3
Disability	4.9	4.5	2.2	2.3	2.5	2.9

Source: AWRS 2014.